Remarks

This application has been reviewed in light of the Office Action of November 17, 2003. Claims 1-7, 9-20, 24, 25, and 27-33 are pending, and all claims stand rejected. In response, claims 17 and 27 are amended, and the following remarks are submitted.

Claim 29 is rejected under 35 USC 102 over Griffin US Patent 5,864,094. Applicant traverses this ground of rejection.

The following principle of law applies to sec. 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

Thus, identifying a single element of the claim which is not disclosed in the reference is sufficient to overcome a Sec. 102 rejection.

Claim 29 recites in part:

> "at least a first one of the spiral conductor structures has two circumferentially adjacent spiral conductor structures each having a different identity than the first one of the spiral conductor structures"

This limitation is not addressed in the explanation of the rejection. Instead, the

explanation of the rejection addresses a limitation that does not appear in this claim 29. See Office Action, page 3, 3-5 lines from the bottom of the page.

There is no instance in the structures disclosed by Griffin where this limitation is met. In Griffin, all of the neutral conductors 60 are grouped together on one side of the cable (extending from about the 10 o'clock position to about the 4 o'clock position in Figure 2, the only figure that shows the different types of conductors 60 and 62) , and all of the line conductors 62 are grouped on the other side of the cable (extending from about the 4 o'clock position to about the 10 o'clock position in Figure 2). See Figure 2 and the discussion at col. 6, lines 6-19 of Griffin. There is no instance either disclosed or illustrated in Griffin where there is a first spiral conductor structure whose circumferentially adjacent spiral conductor structures each have a different identity than the first one of the spiral conductor structures. The spiral conductor structures of Griffin that are not at the ends of their respective groups have the same spiral conductor structure on each side. The spiral conductor structures of Griffin that are at the ends of their respective groups have a different spiral conductor structure on one side, but the same spiral conductor structure on the other side.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 1-6, 9, 11-14, 17-18, 20, 24-25, 27-28, and 30-33 are rejected under 35 USC 103 over Griffin '094 in view of Applicant's Own Admission of Prior Art (AOAPA). Applicant traverses this ground of rejection.

The discussion of Griffin focuses on the cable of Figure 2 and its discussion, and Applicant will follow that lead. Griffin teaches that the cable of Figure 2 is a power cable, in which the line function current-carrying capability and the neutral function current-carrying capability are split up into two groups of six wires that, in totality, have the same current-carrying area and capability as a larger wire. See col. 6, lines 14-21 of Griffin:

> "A plurality of individual line and neutral conductors 62 and 60 are employed to replace a single 12 AWG line conductor and a single 12 AWG neutral conductor. The number of individual line and neutral conductors 62 and 60 is selected to equal the cross-sectional diameter of a single 12 AWG conductor. Thus, six line conductors and six neutral conductors 60 are employed in two separate side-by-side, annular groups within the power cable 50."

The total current (power) carrying capability of single 12 AWG conductors is split up among the 6-each individual line and neutral conductors 62 and 60. Beyond the non-spiraled central ground wire 52, there is no teaching of any other conductors in the power cable of Griffin. If one were to attempt to use any of the line conductors 62 or the neutral conductors 60 for any other purpose, such as signal carrying, the required functionality of Griffin's structure would be lost because Griffin would not be able to carry the required current of the 12 AWG conductor, and Griffin's structure becomes inoperable. In short, there is no room in Griffin's power cable for any spiral signal-carrying conductors, since all of the space within the power cable is taken with conductors necessary to perform the power-transmission function.

Griffin also teaches that there must be exactly six line conductors 62 of the same type grouped together in a first group extending half way around the circumference, and that there must be six neutral conductors 60 of the same type grouped together in a second group extending the rest of the way around the circumference.

Further, there is no cross-talk threat in a power cable as taught by Griffin between the power-carrying conductors themselves. However, if one were to attempt to insert signal-carrying conductors adjacent to the unshielded power-carrying conductors taught by Griffin, there would be severe cross-talk problems in the signal-carrying conductors. Griffin has no suggestion of somehow incorporating signal-carrying conductors into its power-carrying cable.

AOAPA teaches signal-carrying structures of two very different types, providing two different solutions to the cross-talk problem in signal-carrying conductors. There

is always a temptation in forming a rejection to attempt to read more into AOAPA than is found in the AOAPA, and the following discussion will point out specifically what the AOAPA says and what it does not say. The essence of the present rejection, set forth in the paragraph bridging pages 11-12 of the Office Action, is to try to suggest a different teaching that what is stated by leaving out the full teachings in each case, and to blur the distinction between these two different solutions, while not mentioning the shielding taught by both AOAPA embodiments.

In the first instance of AOAPA discussed in para. [0004]-[0005] of the present application, a shielded Ribbonized Organized Integrated (ROI) structure is taught. (The teaching of para. [0004] is not in some generalized context, but instead is specific to the flat-ribbon context, see page 1, lines 24-25. It is therefore not proper to attempt to read that teaching into anything other than a ribbonized array.) In the shielded-ROI structure that is taught in the AOAPA, woven wire ribbons are stacked in a pack, separated by electrically grounded copper foils and covered with a braided shield, see para. [0005]. There is no spiral arrangement of wires in the shielded-ROI structure, and electrical shielding is placed between the individual signal-carrying structures. The shielded-ROI structure teaches a flat ribbon arrangement, which is more difficult to bend in two dimensions than is a cable.

Every one of the pending claims recites a "spiral conductor structure". The shielded-ROI structure is a flat ribbon, and has no spiral conductors. It therefore teaches directly away from the presently recited approach. It is a well-established principle of law that a prima facie case of obviousness may not properly be based on a reference which teaches away from the present invention as recited in the claims.

> "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. In re Sponnoble, 160 USPQ 237 244 (CCPA 1969)...As "a useful general rule,"..."a reference that 'teaches away' can not create a prima facie case

of obviousness." In re Gurley, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)"

Applicant carefully explained the structural and functional differences between a flat ribbonized structure and a spiral conductor structure. Certainly a flat-ribbon shielded-ROI structure that has no spiral conductor structure is a teaching away from the recited "spiral conductor structure". Thus, clearly the teachings of the flat "shielded-ROI" type structure of para. [0004]-[0005] of the present application may not be relied upon as a pertinent teaching.

The explanation of the rejection attempts to construct the rejection by misstating the content of this AOAPA of the shielded-ROI structure. At page 11, lines 13-17 and in the sentence bridging pages 11-12 of the Office Action, there are attempts to apply the discussion of the flat-ribbon shielded-ROI structure to the cable discussed in para. [0006]-[0007] of the application, and of course it does not so apply. As clearly stated in the cable case, to be discussed next, the wires are shielded to avoid the cross talk problem. The discussion of para. [0004]-[0005] applies only to a flat-ribbon shielded-ROI structure, which is also shielded.

In the second instance of AOAPA, the AOAPA teaches a shielded signal-carrying cable, see para. [0006]-[0007]. AOAPA teaches that "To prevent such interferences, some of the wires are shielded with a grounded metallic shield..."

Griffin is nonanalogous art. Its teachings are therefore not properly combined with the teachings of AOAPA. To be analogous art and properly used in forming a sec. 103 rejection, a reference must be concerned with the same problem as another reference and the claims which are being addressed. See, for example, Medtronic, Inc. v. Cardiac Pacemaker, Inc., 220 USPQ 97, 104 (Fed. Cir. 1983), stating: "Faced with a rate-limiting problem, one of ordinary skill in the art would look to the solutions of others faced with rate-limiting problems." Also, Stratoflex, Inc. v. Aeroquip Corp., 218 USPQ 871, 876 (Fed. Cir. 1983), stating: "The scope of the prior art has been defined as that 'reasonably pertinent to the particular problem with which the inventor was involved.'" In the present case, the inventor was concerned with a problem in reducing cross talk between the individual signal-carrying wires of a signal-carrying electrical

cable, see for example, the first sentence of para. [0008] of the present application: "There is a need for an improved approach to electrical cables that must carry different types of electrical signals and are constrained in weight and/or size." Both types of AOAPA are concerned with this problem, but have come up with different solutions. Griffin, on the other hand, deals with power-carrying cables and has nothing at all to do with such signal-carrying electrical cables, and therefore is not properly within the scope of the prior art. It is therefore not properly applied in rejecting the present claims in forming a sec. 103 rejection.

The form of the rejection is to seek to combine AOAPA's teachings of signal-carrying cables with Griffin's teachings of power cables. At page 12, lines 4-13, it is asserted that "...it would have been obvious...to modify the cable of Griffin to comprise at least one or more signal conductor as taught by AOAPA..." Applicant must disagree. Such a modification requires that Griffin be made inoperable for its stated purpose, and goes contrary to the specific teachings of Griffin. Griffin, in the passage quoted above, specifically requires that six-each of the spiral conductors be sized to replace single 12 AWG line and neutral conductors to provide the same power-carrying capability. The cable taught by Griffin becomes inoperable for its stated purpose if one uses signal-carrying conductors instead of the specific conductors 60, 62 taught by Griffin. Griffin also requires that there be six line conductors grouped together and then six neutral conductors grouped together, which occupies the entire circumference of the power cable.

MPEP 2143.01 provides that, in constructing a sec. 103 rejection, the proposed modification cannot render the prior art unsatisfactory for its intended purpose or change the principle of operation of a reference. Both of these requirements are violated in the proposed combination of teachings. Griffin would be rendered unsatisfactory, because it would no longer carry the required current. Its principle of operation would certainly be changed, as it would no longer be a power-carrying cable as taught by Griffin.

The statement is made at page 12, lines 12-13 that "...it appears that Griffin would perform with or without the modification." That is certainly not the case, as the

proposed modification would render Griffin inoperable for its power-carrying function and its function of having six line conductors and six neutral conductors in two separate, side-by-side groups to carry the same power as single 12 AWG line and neutral conductors.

The following principle of law applies to all sec. 103 rejections. MPEP 2143.03 provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art references clearly do not arguably teach some limitations of the claims.

Turning to the individual claim limitations, claim 1 recites in part:

> "wherein the spiral conductor structures have no electrically conducting shielding, wherein at least some of the spiral conductor structures have different signal-carrying identities"

That is, the spiral conductor structures are signal-carrying conductors, and they have no shielding thereon.

All of the other rejected claims have similar limitations of a signal-carrying conductor and no shielding. The teachings of both the shielded-ROI AOAPA and the shielded-cable AOAPA require the use of shielding for at least some of the signal-carrying conductors.

Claim 1 further recites in part:

"wherein the spiral conductor structures have no electrically conducting shielding"

In the proposed modification, both of the approaches taught by AOAPA require shielding, see col. 2, line 9-10 and col. 2, line 28-29. The shielded-ROI AOAPA of para. [0004]-[0005] has no spiral conductor structures, so it is difficult to know how to interpret the limitation in relation to this art, but certainly there is internal shielding, see page 2, lines 7-9 of the present application. The cable AOAPA of para. [0006]-[0007] expressly requires that some of the wires are shielded (page 2, lines 29-30). The proposed combination therefore does not teach this limitation, and in fact requires the presence of internal electrically conducting shielding if there are signal-carrying conductors present.

Claim 11 recites in part:

"at least one of the spiral conductor structures has a signal-carrying identity

* * * * *

"a circumferential arrangement of each spiral conductor structure is selected responsive to its designated identity and to the designated identities of each of the pair of circumferentially adjacent spiral conductor structures

* * * * *

"the electrical cable is substantially circular viewed in cross section perpendicular to the local longitudinal axis"

Griffin requires the two groupings of six line conductors 62 and six neutral conductors 60. There is no place to put a signal-carrying spiral conductor structure within Griffin's structure. There is no opportunity to select a circumferential arrangement responsive to anything, and therefore Griffin teaches directly away from the claim limitation. The shielded-ROI wiring AOAPA embodiment of para. [0004]-

[0005] of the present application has no spiral conductor structure--it is a flat ribbon. That is, it teaches directly away from the claimed approach of a substantially circular cross section. Its teachings may therefore not be relied upon. The shielded-cable AOAPA embodiment of para. [0006]-[0007] of the present application has no such teaching of a selection according to identity. Accordingly, there is no teaching of a limitation of a circumferential arrangement responsive to anything.

Claim 17 recites in part:

> "selecting a circumferential arrangement of each spiral conductor structure responsive to its designated identity and to the designated identities of each of a pair of circumferentially adjacent spiral conductor structures, wherein the step of selecting includes the step of arranging the spiral conductor structures responsive to a power carried by each spiral conductor structure and responsive to the power carried by the circumferentially adjacent pair of spiral conductor structures"

This limitation is not taught by Griffin, because Griffin teaches a very specific power carrying structure that must be maintained in order for Griffin to perform as required, and because Griffin does not teach anything like "selecting an arrangement responsive to the power carried by the circumferentially adjacent pair of spiral conductor structures". This limitation is not taught by the shielded-ROI form of the AOAPA, because it does not teach a spiral conductor structure and instead is limited to the ribbon-form structure. This limitation is not taught by the shielded-cable AOAPA, which has no discussion of the arrangement of the spiral conductor structures.

Claim 27 recites in part:

> "selecting a circumferential arrangement of each spiral conductor structure responsive to its designated identity and to the designated identities of each of a pair of circumferentially adjacent spiral conductor structures, wherein the step of selecting includes the step of arranging the

spiral conductor structures responsive to a crosstalk characteristic thereof"

This limitation is not taught by Griffin, because Griffin teaches a very specific power carrying structure that must be maintained in order for Griffin to perform as required, and because Griffin does not teach anything like "selecting an arrangement responsive to the power carried by the circumferentially adjacent pair of spiral conductor structures". This limitation is not taught by the shielded-ROI form of the AOAPA, because it does not teach a spiral conductor structure and instead is limited to the ribbon-form structure. This limitation is not taught by the shielded-cable AOAPA, which has no discussion of the arrangement of the spiral conductor structures.

Claim 30 recites in part:

"a circumferential positioning of the spiral conductor structures relative to each other is responsive to a signal carried by each spiral conductor structure, and wherein...wherein each spiral conductor structure is unshielded;"

This limitation is not taught by Griffin, because Griffin teaches a very specific power carrying structure that must be maintained in order for Griffin to perform as required, because Griffin does not teach signal-carrying conductors, and because Griffin does not teach anything like "selecting an arrangement responsive to the power carried by the circumferentially adjacent pair of spiral conductor structures". This limitation is not taught by the shielded-ROI form of the AOAPA, because it does not teach a spiral conductor structure and instead is limited to the ribbon-form structure. This limitation is not taught by the shielded-cable AOAPA, which has no discussion of the arrangement of the spiral conductor structures and requires that the spiral conductor structures be shielded.

The present rejection seeks to perform a hindsight reconstruction based upon unrelated references, which is technically unsupported and is legally improper.

The case authority and the MPEP provide guidance on this point. The present rejection is a sec. 103 combination rejection. It is well established that a proper sec. 103 combination rejection requires more than just finding teachings in the references of the elements recited in the claim (but which was not done here). To reach a proper teaching of an article or process through a combination of references, there must be stated an objective motivation to combine the teachings of the references, not a hindsight rationalization in light of the disclosure of the specification being examined. MPEP 2143 and 2143.01. See also, for example, In re Fine, 5 USPQ2d 1596, 1598 (at headnote 1) (Fed.Cir. 1988), In re Laskowski, 10 USPQ2d 1397, 1398 (Fed.Cir. 1989), W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 311-313 (Fed. Cir., 1983), and Ex parte Levengood, 28 USPQ2d 1300 (Board of Appeals and Interferences, 1993); Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351 (Board of Appeals 1984). As stated in In re Fine at 5 USPQ2d 1598:

> "The PTO has the burden under section 103 to establish a prima facie case of obviousness. [citation omitted] It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."

And, at 5 USPQ2d 1600:

> "One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

Following this authority, the MPEP states that the examiner must provide such an objective basis for combining the teachings of the applied prior art. In constructing such rejections, MPEP 2143.01 provides specific instructions as to what must be shown in order to extract specific teachings from the individual references:

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

* * * * *

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)."

* * * * *

"A statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Ex parte Levengood, 28 USPQ2d 1300 (Bd.Pat.App.& Inter. 1993)."

Here, there is set forth no objective basis for combining the teachings of the references in the manner used by this rejection, and selecting the helpful portions from each reference while ignoring the unhelpful portions. An objective basis is one set forth in the art or which can be established by a declaration, not one that can be developed in light of the present disclosure. The rationale urged in the explanation of the rejection, "because AOAPA teaches that such a configuration reduces the possibility of cross talk and minimizes coupling of adjacent conductors..." (Office Action, page 12, lines 7-9) has utterly nothing to do with power cables of the type disclosed in Griffin.

There is no concern with cross talk in a power cable, and nothing of record supports a contention that there is any such concern. If the rejection is maintained, Applicant asks that the Examiner set forth the objective basis found in the references themselves for combining the teachings of the references, and for adopting only the helpful teachings of each reference and disregarding the unhelpful teachings of the reference.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 7, 10, 15-16, and 19 are rejected under 35 USC 103 over Griffin '094 in view of AOAPA (the combination of teachings being termed "modified Griffin"), and further in view of Hansen US Patent 3,829,603. Applicant traverses this ground of rejection.

The combination of the teachings of Griffin '094 and AOAPA has been discussed previously, and that discussion is incorporated here. This combination of teachings does not teach the limitations of the parent claims, and Hansen adds nothing in this regard.

Hansen teaches another form of a power cable, see the title, the abstract, and the entire patent. Like Griffin, it is nonanalogous art for the reasons discussed earlier, which are incorporated here.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Response to Arguments

Paper number 8 was a Preliminary Amendment in an RCE. Applicant submitted no Remarks with paper number 8 because Applicant expected the prior rejections would be mooted and new rejections instituted, as did in fact occur. Additionally, it is normal practice not to submit substantive remarks with a Preliminary Amendment that submits new claims. In this case, since Applicant could not be certain what the new rejections

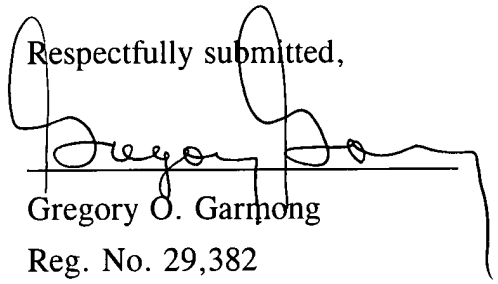
might be, there was no need to submit remarks related to a mooted rejections.

Applicant submits that the application is now in condition for allowance, and requests such allowance.

This paper is filed by the undersigned, who is not presently an attorney of record, pursuant to 37 CFR 1.34(a), MPEP 405, at the instruction of the attorney of record.

I hereby certify that this paper and fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10, on January 23, 2004 with Express Mail label No. EF400863829US, addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Respectfully submitted,



Gregory O. Garmong
Reg. No. 29,382
Attorney for Applicant